UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,301	03/18/2004	William Voorhees	03-0306	5792

			EXAMINER
24319	7590	08/09/2006	SCHNEIDER, JOSHUA D

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ART UNIT	PAPER NUMBER
2182	

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/803,301	VOORHEES ET AL.
	Examiner	Art Unit
	Joshua D. Schneider	2182

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _18 March 2004_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-22_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-22_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _18 March 2004_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   Figures 1, 3, and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2.   It is appreciated that the shown systems may be used with novel methods of command distribution, but as stated in the Applicant's specification, the systems shown in these figures can be built with commercially available products and used with known methods. As such it is believed that the drawings should be labeled as prior art.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-4, 8-12, and 16-19, are rejected under 35 U.S.C. 103(a) as being unpatentable

over U.S. Patent 5,974,502 to DeKoning et al. in further view of U.S. Patent 6,877,045 to Goode

et al., U.S. Patent 6,301,625 to McDonald et al. and the Applicant Admitted Prior Art (AAPA).

5.   With regards to claims 1, 8, 9, 11, 12, and 16, DeKoning teaches receiving an I/O request

from a requesting host system requesting a transaction involving a range of data having a size of

S units of data (from RCSU, all sizes have units, column 6, lines 22-36); determining if the size

of the I/O request data (S) is greater than a threshold size (T) (column 6, lines 33-36); in

response to a determination that S > T (column 6, lines 40-54), subdividing the I/O request into

smaller I/O requests of substantially equal size (column 6, lines 40-54) and processing the

smaller requests substantially in parallel (column 6, lines 40-54). DeKoning fails to teach a SAS

wide port system with a number of PHYs, determining a number (M) of PHYs available for use

to process the I/O request, and returning a single status to the requesting host system indicating

the status of the processing of the M smaller requests. However, the use of SAS systems with a

plurality of PHYs were notoriously well known at the time of invention as described in the

AAPA of the current application (pages 2-3, and page 6). It would have been obvious to one of

ordinary skill in the art at the time of invention to the SAS protocol with the command division

of DeKoning in order exploit the advantages of parallel processing. Goode teaches dividing

commands among the number of available data paths for parallel processing (column 7, lines 18-

39). It would have been obvious to one of ordinary skill in the art at the time of invention to

combine command distribution of Goode with the command division of DeKoning in order to

exploit the advantages of parallel processing. McDonald teaches a system for keeping track of

individual completion notices of a divided I/O request in order to return a single completion for

the original request (column 2, line 41, through column 3, line 46). It would have been obvious

to one of ordinary skill in the art at the time of invention to combine command completion notice

of McDonald with the command division of DeKoning in order to exploit the advantages of

parallel processing with out creating a bottleneck.

6.   With regards to claims 2, 3, 10, 17, and 18, DeKoning teaches statically and dynamically

determining the value of T (column 6, lines 35-40, and column 7, line 38, through column 8, line

33).

7.   With regards to claims 4 and 19, DeKoning teaches dynamically determining the value of

T as a function of a number of currently outstanding transactions (cache full percentage, column

8, lines 13-42).

8.   Claims 5-7, 13-15, and 20-22, are rejected under 35 U.S.C. 103(a) as being unpatentable

over U.S. Patent 5,974,502 to DeKoning et al., U.S. Patent 6,877,045 to Goode et al., U.S. Patent

6,301,625 to McDonald et al. and the Applicant Admitted Prior Art (AAPA), in further view of

In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950); In re Kuhle, 526 F.2d 553, 188 USPQ

7 (CCPA 1975).

9.   With regards to claims 5-7, 13-15, and 20-22, DeKoning fails to explicitly teach the

system and method is operable within a SAS driver of a host system's operating system, within a

SAS initiator device controller, and within a SAS expander forwarding a request from a SAS

initiator to a SAS target. However, it would have been obvious to one of ordinary skill in the art

at the time of invention that several of the off the shelf product available to implement SAS

system that the location of the operation of a method in system is not set or determinative as to

how the system operates. In re Japikse and In re Kuhle teach that the arrangement of the parts of

system, or the location in which a method is carried out, is not an indication of non-obviousness. It would have been obvious to one of ordinary skill in the art at the time of invention to implement the combined system of DeKoning, Goode, McDonald, and AAPA to implement the system and method within a SAS driver of a host system's operating system, within a SAS initiator device controller, or within a SAS expander forwarding a request from a SAS initiator to a SAS target, as shown be the various locations of operation execution in DeKoning, Goode, McDonald, and AAPA, in order to enhanced processing speed or greater connection flexibility of the various locations.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua D. Schneider whose telephone number is (571) 272-4158. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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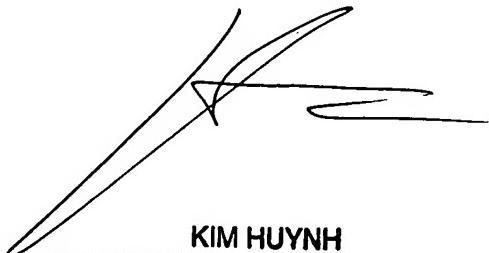
KIM HUYNH
SUPERVISORY PATENT EXAMINER

8/7/86